



Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 12443 (1988): Rolled Brass Plates for General Engineering Purposes [MTD 8: Copper and Copper Alloys]

“ज्ञान से एक नये भारत का निर्माण”

Satyanaaranay Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartṛhari—Nītiśatakam

“Knowledge is such a treasure which cannot be stolen”



BLANK PAGE



PROTECTED BY COPYRIGHT

Indian Standard

SPECIFICATION FOR ROLLED BRASS PLATES FOR GENERAL ENGINEERING PURPOSES

1. Scope — This standard specifies the requirements of rolled brass plates for general engineering purposes.

2. Terminology — For the purpose of this standard, the following definition, as given in IS : 3288 (Part 3)-1986 'Glossary of terms relating to copper and copper alloys: Part 3 Wrought form', shall apply.

2.1 Plate — Flat material over 10 mm thick and over 300 mm wide.

3. Supply of Material — General requirements relating to the supply of material shall conform to IS : 1387-1967 'General requirements for the supply of metallurgical materials (*first revision*)'.

4. Freedom from Defects — The plate shall have clean and smooth surface free from black oxide, porosity or other harmful defects.

5. Condition of Supply — The material shall be produced by hot rolling and/or cold rolling, and shall be supplied in one of the following conditions specified by the purchaser:

As Manufactured (M)

Annealed (O)

Strain hardened (H)

6. Chemical Composition — The material shall conform to chemical composition given in Table 1.

TABLE 1 CHEMICAL COMPOSITION

Values given are in percent, maximum, unless shown otherwise.

Alloy Designation	Copper	Lead	Tin	Iron	Arsenic	Aluminium	Zinc	Total Impurities (Including Iron)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Cu Zn 28 As (Brass)	70.0-73.0	0.075	—	0.06	0.02-0.06	—	Remainder	0.30
Cu Zn 30 (Brass)	68.5-71.5	0.05	—	0.05	—	—	Remainder	0.30
Cu Zn 36 Sn 1 (Naval Brass)	61.0-64.0	—	1.0-1.5	—	—	—	Remainder	0.75
Cu Zn 39 Sn (Naval Brass)	59.8-62.0	0.02	0.5-1.0	0.10	—	—	Remainder	0.50
Cu Zn 20 Al2 As (Aluminium Brass)	76.0-79.0	0.07	—	0.06	0.02-0.06	1.8-2.5	Remainder	0.30
Cu Zn 40 Pb (Leaded Muntz Metal)	58.0-61.0	0.04-1.0	0.25	0.15	—	—	Remainder	0.50

6.1 The chemical composition shall be determined by the method specified in IS : 3685-1966 'Methods of chemical analysis of brasses' or any other established instrumental/chemical method. In case of dispute, the procedure specified in IS : 3685-1966 shall be the referee method.

7: Mechanical Properties — The tensile properties of the plate shall conform to the requirements given in Table 2.

TABLE 2 MECHANICAL PROPERTIES OF ROLLED BRASS PLATE
(Clause 7)

Alloy Designation	Condition	Thickness		Tensile Strength Min MPa	Elongation on Gauge Length 5.65 $\sqrt{S_0}$ Min Percent
		Over mm	Up to and Including mm		
(1)	(2)	(3)	(4)	(5)	(6)
Cu Zn 28 As (Brass)	M or O	10	—	280	40
	H	10	15	360	18
		15	25	340	20
Cu Zn 30 (Brass)	M or O	10	—	280	40
	H	10	15	360	18
		15	25	340	20
Cu Zn 36 Sn1 (Naval Brass)	M	10	25	360	18
		25	125	340	18
		125	—	310	18
	H	10	12.5	400	18
Cu Zn 39 Sn (Naval Brass)	M	10	20	315	20
		20	—	305	20
Cu Zn 20 Al 2 As (Aluminium Brass)	M	10	—	280	36
	O	10	—	280	40
Cu Zn 40 Pb (Leaded Muntz Metal)	M	10	20	345	16
		20	50	315	16
		50	—	275	16

7.1 The material shall be tested for tensile test in accordance with IS : 2654-1977 'Method for tensile testing of copper and copper alloys (*first revision*)'.

8. Dimensions and Tolerances

8.1 The plate shall be supplied in any of the sizes and corresponding tolerances as specified in IS : 3051-1988 'Dimensions and tolerances for wrought copper and copper alloy plate (*first revision*)'.

8.2 The sizes and tolerances other than those given in IS : 3051-1988 shall be as agreed to between the purchaser and the manufacturer.

9. Calculation of Mass — For the purpose of calculating the mass of plate, the following density of the alloys shall be taken:

Alloy Designation (Ref Table 1)	Density kg/m ³
CuZn28As, CuZn30	8940
CuZn36Sn1, CuZn39Sn, CuZn40Pb	8426
CuZn20Al2As	8346

10. Sampling and Criteria for Conformity

10.1 Unless otherwise agreed to between the purchaser and the supplier, the following sampling procedure and criteria for conformity shall hold good.

10.2 Each plate shall be examined for freedom of defects and dimensional tolerances.

10.3 One sample shall be drawn and tested for chemical composition and mechanical properties, from each 2 000 kg or fraction thereof or from single plate weighing in excess of this quantity.

10.3.1 If the test results satisfy the requirements of chemical composition and mechanical properties, the material represented shall be considered as conforming to the requirements of the specification.

11. Retests

11.1 If the test results of chemical analysis fail to satisfy the requirements for any of the constituents, two more tests for that constituent shall be done on the same sample in order to confirm that the analysis has been done properly. If both the test results satisfy the relevant requirements, the lot shall be considered as conforming to the specification, otherwise not.

11.2 If any of the test sample first selected fail to pass tensile test, two further samples shall be selected and tested. If both the additional samples pass the test, the material represented by the test sample shall be deemed to comply with this standard. If either of these additional sample fail, the lot shall be rejected.

12. Packing — The material shall be suitably packed to avoid damage during transit or as required by the purchaser.

13. Marking — The plate may be marked with the size, alloy designation, condition of supply, lot number, date of manufacture, name of manufacturer, and any such information required by the purchaser.

13.1 Standard Marking — The plate may also be marked with the Standard Mark. The details of standard marking scheme is available from the Bureau of Indian Standards.

14. Test Certificate — The manufacturer/supplier shall provide test certificate for each consignment giving information like lot number, corresponding chemical composition and tensile test results.